EFFECT OF EXTERNAL DEBT ON INFLATION RATE IN NIGERIA

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ABSTRACT: *The study examines the effect of external debt on inflation rate in Nigeria between 2008 to 2023. Ex post-facto research design was used and quarterly time series data were extracted from the Central Bank of Nigeria's statistical bulletin and Debt Management Office reports 2023. The dependent variable was inflation rate, while the independent proxies were multilateral debt and bilateral debt. The Johansen cointegration test estimation was used based on the unit root test result with shows that external debt had no co-integration with inflation rate in Nigeria. Based on regression analysis, it was found that the bilateral debt had a negative significant effect on inflation rate in Nigeria while multilateral debt had a positive significant effect on inflation rate in Nigeria. Therefore, this study recommended that the government should go for more bilateral loans tied to capital projects like the railway project with the China Export-Import Bank. This will encourage price stability and push for the inflow of expatriates that might end up investing in the Nigerian economy and reducing inflation. Government should be cautious in accumulating multilateral debt since most of these multilateral organizations give stringent conditions on loans which might hamper the price stability of the country. Effective debt management and prudent fiscal policies which enhance economic resilience are crucial for mitigating these inflationary impacts.*

KEYWORDS: External Debt, Multilateral Debt, Bilateral Debt, Inflation Rate, Price Stability.

INTRODUCTION

A nation's external debt comprises the obligations owed to nonresidents, including foreign governments, corporations, private institutions, and international financial bodies such as the International Monetary Fund (IMF) and World Bank. This represents the amount borrowed from or owed to foreign entities, which can be in the local or foreign currency. External debt encompasses the commitment to monetary obligations to non-residents, including government guarantees in other currencies, usually in US dollars, and adjusts for external commitments that can impact the country's inflation rate (Khattak, 2018).

Numerous developing countries rely on significant external financing to realize their growth and objectives. However, debt tends to augment the money supply in the economy and may lead to inflationary consequences. The classical economists' quantity theory of money posits that inflation is driven by money growth. According to this theory, changes in money supply are directly proportional to changes in prices and have no impact on output and employment. Consequently, this can result in inflation as an abundance of money pursuing limited goods increases demand and raises prices. While inflation may be driven by monetary factors, money actually reflects fiscal policy rather than monetary policy. Additionally, these deficits are also funded through funds generated by the central bank's banking operations. Funds intended for foreign exchange purchases are lent to the government for its expenditure activities. Thus, increased government spending displaces some private borrowing (Abubakar, 2019).

Price stability is crucial for every government as it fosters a steady environment for economic expansion and investment. When prices remain constant, consumers and businesses can strategize for the future and make more informed decisions about their spending, saving, and investments. The government's monetary and fiscal policies hinge on controlling the price index. The relationship between external debt and inflation rate has garnered attention in recent years due to the significant role of external debt in financing fiscal deficits (Akingbade & Odhiambo, 2021). In April 2024, the headline inflation rate rose to 33.69% compared to the 33.20% in March 2024, leading to a relative increase in the prices of food and essential commodities (NBS, 2024). As of Q3 2023, Nigeria's total external debt amounted to N31.98 trillion (US$41.59 billion), while the total domestic debt was N55.93 trillion (US$72.76 billion) according to the Debt Management Office (2023). The proportion of external debt (in naira value) to the total public debt was 36.38% in Q3 2023, while the share of domestic debt (in naira value) to total public debt was 63.62%. Nigeria's external debt comprises predominantly debts to two major international syndicates, namely bilateral and the Paris Club and London Club of creditors.

The share of a country's external debt owed to international financial institutions, such as the IMF and the World Bank, is referred to as multilateral debt. External debt encompasses borrowing in foreign currency with government guarantees to non-residents, typically in US dollars, adjusted for external commitments that could impact the country's inflation rate (Khattak, 2018). Bilateral debts are loan arrangements between a borrower and a single lender, as opposed to syndicated loan agreements involving multiple lenders. In some financing deals, the borrower may have two or more separate bilateral loan agreements with different lenders. The selection of funding methods during public deficits is driven by cost, risk, and various government objectives, including low inflation, favorable yield curves, adequate foreign

reserve coverage, and domestic market activity, all of which can influence the economy's inflation rate (Aimola & Odhiambo, 2018).

Maintaining price stability with minimal inflation is a crucial government objective in Nigeria, as it fosters confidence in the economy and supports more consistent economic growth. However, rapid price increases can lead to inflation, diminishing the value of people's savings and causing economic instability. Consequently, reducing debt levels through spending cuts or tax hikes may have adverse effects on the economy, lowering consumer and business spending and slowing economic growth (Cham, 2023). Therefore, the question arises: how can the government manage debt levels while preserving a stable price level in the economy? Despite government efforts to reduce inflation through fiscal policy reforms, price stability continues to be a challenge in Nigeria, with inflation remaining persistently high at 33.69%. However, the primary goal of this study is to investigate the impact of external debt on Nigeria's inflation rate from 2008 to 2023. The following hypotheses were tested:

H_o: Multilateral debt has no significant effect on inflation rate in Nigeria.

H_a: Bilateral debt has no significant effect on inflation rate in Nigeria.

LITERATURE REVIEW

Concept of External Debt

The outstanding loan that a country owes to another country or institutions within that country is known as external debt. This type of debt also includes payments that are owed to international organizations, such as the International Monetary Fund. External debt arises from borrowing in the international markets and consists of three main categories of creditors: Bilateral, Multilaterals, and commercials.

According to Nwanne and Eze (2019), external debt refers to the part of a country's debt that was borrowed from foreign lenders, which may include commercial banks, governments, or international financial institutions. The loans, along with their interest, are usually repaid in the currency in which the loan was obtained. To obtain the necessary currency for repayment, the borrowing country may trade and export goods to the lending country. External debt encompasses raising resources from economies other than Nigeria, which involves external borrowing and the receipt of aid and grants. The government plans to borrow significantly from external sources, as indicated by DMO (2023). External borrowing is often appealing due to its minimal impact on private investment and reduced risk of inflationary pressures, as stated by Beaugrand et al. (2012).

The concept of external debt involves owing non-residents repayable amounts in foreign currency, goods, or services (World Bank, 2019). Nigeria's external debts mainly come from various sources such as multilateral agencies, the Paris Club of Creditors, the London Club of Creditors, Promissory Note Holders, Bilateral and Private Sector Creditors, and other creditors (Jhingan, 2007). It refers to the total disbursed and outstanding contractual obligations of a country's residents to non-residents, whether for repaying principal with or without interest, or paying interest with or without principal. External debt, as studied here, denotes funds borrowed by a country from foreign lenders, with the interest needing to be repaid in the loan

currency (Zaki, 2015). Therefore, the borrowing country would likely have to export its goods to the lending country to obtain the necessary currency. Typically, foreign commercial banks, international financial institutions like IMF, World Bank, ADB, and foreign governments are the sources of external debt (Farajik & Makame, 2011).

These debts are often tied to specific purposes agreed upon by both the borrower and the lender. Governments and corporations can acquire loans from abroad in the form of external commercial borrowings, with interest rates linked to LIBOR (London Interbank Offer Rate) and determined by the borrower's credit rating (Fosu, 2016). External debts can be categorized as multilateral and bilateral, but in this study, the focus is on multilateral and bilateral debts due to their prevalence in Nigerian government practices.

Multilateral Debt

The term multilateral debt refers to the debt that is owed to international financial institutions, which have multiple countries as members. These institutions encompass the International Monetary Fund (IMF), the World Bank, regional development banks, and similar organizations. Unlike bilateral debt, which is debt owed to a single creditor country, multilateral debt is usually provided to support the economic growth and development of developing countries. It may be in the form of loans or grants, and the repayment terms are often more flexible than those of commercial loans (Mbah et al., 2016). Multilateral debt can also be viewed as a type of official development assistance (ODA), which is a crucial source of funding for many developing countries. While it can be a valuable tool for promoting economic development, multilateral debt can also become a burden for countries unable to meet their debt obligations (Nagassan, 2018).

Loans from the World Bank, Regional Development Bank, and other multilateral and intergovernmental agencies are considered official loans from multilateral international organizations. Loans from funds administered on behalf of a single donor government by an international entity are not included; they are considered loans from donors. It is important to note that most of these entities, particularly regional development banks, European organizations, and the Inter-American Development Bank, operate under private venture trade regulatory laws and seek to optimize their profits (Global Development Finance, 2018). They abide by a set of rules related to long-term capital markets; for instance, they provide loans under conditions where payment is assured. This is dependent on the economic status of the country, its position with regard to past debts, and future potential. As a result, these organizations send delegations to the recipient countries to conduct necessary studies before providing the loan (Global Development Finance, 2018).

Multilateral debt pertains to debt owed to international financial institutions that provide loans to multiple countries rather than just one. These institutions consist of the World Bank, the International Monetary Fund (IMF), regional development banks, and other similar organizations. Multilateral debt is commonly extended to developing countries to finance development projects and alleviate poverty. These loans are often offered at lower interest rates than loans from commercial banks and may have longer repayment periods. While multilateral debt can be an important source of financing for developing countries, it can also represent a significant burden. Many developing countries already struggle with high levels of debt, and acquiring more debt can result in debt servicing costs that affect government budgets and limit investment in essential areas such as education and healthcare (Khattak, 2018).

The part of a country's external debt that is owed to international financial institutions (IFIs) like the International Monetary Fund (IMF) and the World Bank is known as multilateral debt. Multilateral debt is a significant concern for the world's poorest countries because IFIs are considered "preferred creditors" and provide essential development and balance-of-payment loans (Ambrose, 2019). As preferred creditors, payments to these institutions take top priority over private and bilateral debts (government-to-government). Unlike governmental and private creditors, IFIs maintain that their regulations prevent them from providing debt relief or canceling debts. Governments are highly motivated to keep up with their multilateral debts because IFIs assess the creditworthiness of countries. Without approval from the IMF, which typically requires compliance with its recommended economic policies, poor countries generally cannot access credit or capital from other sources. Overall, multilateral debts are foreign debts that can be a useful tool for financing development projects.

Bilateral Debt

The debts contracted between the borrowing country and the lending country's governments and their agencies, including central banks, are known as bilateral debts (Global Development Finance, 2018). Bilateral debts involve a loan agreement between a borrower and a single lender, as opposed to a syndicated loan agreement where there are multiple lenders. In some financing transactions, the borrower may have two or more bilateral loan agreements, each with a different lender. All these bilateral loan agreements will have substantially the same terms and conditions, together comprising an aggregate financing package for the borrower. Unlike a syndicated loan with multiple lenders and a single agent bank, each bilateral lender administers its own loan (Miller & Foster, 2017).

As per Mohanty and Panda (2019), bilateral loans involve credit arranged between a borrower and a single lender, with only two parties involved. The credit terms set by the lender are typically less complex and easier to administer. Borrowers can expect scheduled interest rate repayments over a specific period. Bilateral loans, usually traditional bank loans, are commonly used by smaller businesses due to their simple structure. The term "bilateral" refers to the fact that there are only two parties to the loan, each with obligations to the other: one provides a specific amount of money under the terms of the loan agreement, and the other repays the money as specified in the same agreement.

Magaly (2022) explained that external debts are debt bonds issued on foreign markets, often in developed countries' trading capital markets. Nations offer bonds of a certain value with a specific interest rate and amortize them over a certain period, during which private investors subscribe to bonds in capitalist countries. This leads to a repurchase of external obligations generated by this form of foreign resources. However, data reported by international organizations and authorities on developing countries' external debt do not encompass direct foreign private investment. It is important to consider both external debt and the country's ability to meet its external debt, as well as the impact of hosting foreign direct private investment. However, this study defines bilateral debt as a loan arrangement between a single borrower and a single lender.

Concept of Inflation Rate

Sexton (2015) provided a definition of inflation as an increase in the overall price level, whereas O'Neill et al. (2017) indicated that it is a general rise in price levels. These similar

explanations suggest that the change in price of one product relative to others does not constitute inflation, as inflation only occurs when there is an increase in average prices across a wide range of products, as also observed by Donovan (2016). However, these definitions do not encompass a crucial aspect of inflation, which is that the increase must be sustained. Offering more suitable definitions in an attempt to capture the upward trend in the general price level, Cecchetti and Schoenholtz (2017) defined inflation as a general increase in prices over time, while Anidiobu, Okolie and Oleka (2018) stated that inflation occurs when there is a sustained increase in the general price level, emphasizing that the focus is on the rise in the overall level of prices for goods and services. Inflation is defined as a persistent, continuous, sustained, and significant rise in overall prices of a wide range of goods and services in an economy over a period of time. Other comprehensive definitions include: a sustained and broad-based increase in the overall price level (Ha, Kose & Ohnsorge, 2019), and also a persistent rise in the general level of prices of goods and services in an economy over a period of time (Mankiw, 2018). These three definitions clearly underscore the three essential features of inflation as highlighted by Labonte (2011): it is an increase, it is persistent, and it is broad based.

Empirical Review

A study by Aimola and Odhiambo (2021) examined the correlation between public debt and inflation in Ghana using annual data from 1983 to 2018. The study utilized the autoregressive distributed lag bounds testing approach to co-integration and an error correction model to explore this relationship. The results of the co-integrating regression indicated a stable long-term connection between inflation and the explanatory variables, taking into account a structural break. The findings suggested a significant positive impact of public debt on inflation. However, the study did not thoroughly analyze the relationship between public debt and inflation in developed and developing economies based on existing literature.

Arisa (2020) investigated the effects of external debt shocks on inflation and exchange rates. The study employed the structural vector auto-regression model and drew data from the Central Bank of Kenya, Kenya National Bureau of Statistics, National Treasury, World Bank, and International Monetary Fund databases covering the period from 1993 to 2018. The findings revealed that a one-standard deviation shock in the external debt to GDP ratio led to a short-term negative impact on inflation for around four quarters, followed by a gradual recovery. The impact continued to improve until the eleventh quarter, after which it stabilized without decay even after the twelfth year. Furthermore, a one standard deviation shock in the external debt to GDP ratio caused a depreciation in the real effective exchange rate. This depreciation persisted for the initial six months, with a subsequent shift to a positive impact for the remaining six quarters. Consequently, an increase in external debt resulted in heightened inflation and a weaker domestic currency in Kenya.

Oyedeji and Olubukunola's (2019) research from 1980 to 2018 sought to empirically assess the influence of external debt management on Nigeria's economic development. The study conducted an Augmented Dickey-Fuller test to determine the stationarity of the time series used for the analysis before proceeding with the regression analysis. Using the ordinary least squares regression method, the study established a significant contribution of debt to the real gross domestic product over the duration considered, as well as a forecast for the exchange rate (2.60) that exceeded the 1.71-time range. This indicated a substantial influence of the exchange

rate on the actual gross domestic product during the period under review. The study emphasized the importance of pre-estimation checks to produce reliable results for policymaking, as solely relying on OLS, such as the ADF root test unit, could yield spurious findings.

In a similar study, Okoli (2019) utilized regression analysis to investigate the influence of external debt on selected macroeconomic indicators in Nigeria from 1970 to 2018. The analysis focused on the impact of external debt and its service costs on variables such as Gross Domestic Product (GDP), total exports, total revenues, total reserves, and exchange rates. Findings indicated a negative trend in macroeconomic indicators due to factors such as debt consumption, credit management practices, reporting inadequacies, and weak external debt accounting and management policies during the 1980s and 1990s, resulting in increased debt burden. The conclusions of this analysis were specific to this study and did not consider results from other studies. Additionally, the recommendations based on the findings were not implemented.

Adesola (2019) conducted a study to explore the relationship between debt payments to various creditors and gross domestic product (GDP) and gross fixed capital formation (GFCF) using data from 1981 to 2018. The Ordinary Least Square multi-regression method was employed for the analysis. The study revealed that debt payments to creditors of the Paris Club and holders of Promissory Notes positively correlated with GDP and GFCF. Conversely, debt payments to creditors of the London Club and other creditors had a negative impact on GDP and GFCF. The study emphasized the importance of pre-estimation checks, as the use of OLS, such as the ADF root test unit, without these checks could lead to erroneous findings unsuitable for policy making.

In 2019, Ndubuisi conducted an analysis on how external debt servicing affects the economic growth of Nigeria. The study gathered data from secondary sources and focused on variables such as Gross Domestic Product, External Debt Services, External Debt Stock, External Reserve, and Exchange Rate from 1985 to 2018. Various tests including the least square regression test, the ADF root test, the Johansen co-integration test, and the error correction test were used to analyze the data. The results indicated a negative and negligible impact of debt service payments on Nigeria's economic development, while external debt stocks had a positive and significant impact on the country's growth index. Other control variables such as foreign reserves and exchange rates showed a positive and meaningful growth effect. The ADF unit root test suggested that not all variables were stationary at the initial stage but were stationary at the first difference. The Johansen co-integration test indicated a long-term relationship between external debt and the GDP. Furthermore, the causality test showed that external debt and GDP had unidirectional causalities. Based on these findings, the study recommended that the government should consider extending external loans for infrastructure development, improving the business environment through legislation, implementing sound debt management policies, and focusing on human resource development. While the study's methodology was statistically accurate, it did not compare the results to those of previous research.

In 2020, Sirah examined the impact of external debt, government expenditure, government budget deficit, and tax revenue on the inflation rate in Ethiopia. The study used annual time series data from 1974/75 to 2018/19 and employed the ADF unit root test, PP-unit root test, short run ARDL model, and diagnostic test. The study found that all listed variables were

stationary at level and first difference, with none becoming stationary at the second difference. The short run ARDL model showed that the budget deficit and government expenditure had a positive impact, while tax revenue and external debt had a negative impact on Ethiopian inflation rate. Additionally, all diagnostic tests confirmed that there were no issues with the short run model.

Adesola (2019) conducted an empirical investigation into the impact of debt payment activities on the economic development of Nigeria. The research involved analyzing the relationship between debt payments to various creditors and gross domestic product (GDP) as well as gross fixed capital formation (GFCF) using data from 1981 to 2018. The method used for this analysis was the Ordinary Least Square multi-regression technique. It was discovered that debt payments to Paris Club creditors and holders of Promissory Notes have a positive correlation with GDP and GFCF, while payments to London Club creditors and other creditors have a negative impact on GDP and GFCF. The study emphasized the importance of conducting pre-estimation checks to ensure the validity of the findings for policy making.

Balago (2019) sought to determine the existence of a relationship between external debt and economic growth in Nigeria. The research utilized different econometric techniques and integrated time series data from 1981 to 2017 into the regression equation. The outcome indicated a relatively significant positive connection between foreign debt and gross domestic product, aligning with previous literature on the subject. It was noted that a post-estimation test is essential to assess if the assumptions of the Ordinary Least Square Regression method are met, which was not conducted in this study.

Faraji and Makame (2018) examined the impact of external debt on Tanzania's economic growth using time series data from 1990 to 2017. The research revealed that external debt and GDP do not have a long-term relationship based on the Johansen co-integration test. However, it was found that both external debt and debt service significantly affect GDP growth, with total external debt stocks having a positive impact and debt service payments having a negative impact. The authors chose not to use the first ARDL difference due to the lack of a long-term relationship between external debt and GDP indicated by the co-integration test, leading to concerns about the suitability of the results for policy making.

Ogege and Ekpudu (2018) analyzed the impact of the debt burden on the Nigerian economy using time series data from 1970 to 2017. They utilized ordinary least square (OLS) to assess the relationship between the debt burden and the growth of the Nigerian economy. The findings indicated a negative correlation between domestic and foreign debt stock and the gross domestic product, implying that an increase in the debt stock would result in a decline in the Nigerian economy's growth rate. However, the use of OLS regression alone may not provide a comprehensive review of the results. To ensure the avoidance of spurious regression results associated with the OLS model, the authors should have conducted unit root and co-integration tests.

Ugwuegbe, Okafor, and Azino (2018) scrutinized the impact of external borrowing and foreign financial assistance, such as official development assistance (ODA), on the growth of the Nigerian economy over a 37-year period from 1980 to 2016. They collected annual time series data from the National Statistics Bulletin of the Central Bank of Nigeria (CBN) and the Organization for Economic Cooperation and Development (OECD) online. The study employed the Ordinary Least Square Technique (OLS) multiple regression model to examine

the causal influence between the variables. Augmented Dickey-Fuller (ADF) was used to perform the Unit Root test, the Johansen co-integration test measured the long-term relationship between the variables, and the Error Correction Method (ECM) was applied to calculate the rate of change. The results revealed that while external debt servicing had a positive and substantial impact on economic growth, foreign aid was positively linked to GDP but statistically insignificant, as anticipated. This suggests that Nigeria benefits from international assistance, but these benefits have not been fully realized. The majority of these funds (foreign aid) have been directed towards meeting the country's recurring or consuming expenditure needs, rather than productive investment. While the study employed appropriate statistical methods, the authors did not draw connections between the study's results and their application for policy making. Additionally, the findings were not linked to the empirical literature review.

Theoretical Framework

Fiscal Theory of the Price Level

Eric M. Leeper (1991) is primarily credited with the development of the fiscal theory of the price level. According to this theory, government fiscal policy, encompassing debt and taxes in the present and future, is the key factor influencing the price level or inflation, in contrast to monetary theory. Confidence in the government's ability to avoid default on its debts, and instead "inflate away" debts, is essential for the fiscal theory of the price level to hold. In nominal terms, the government must settle its existing domestic liabilities, either by refinancing or amortizing the debt, or by generating surpluses in tax revenue. In real terms, the government can also diminish the real amount it must repay by causing or permitting high inflation. Another option is defaulting on its obligations (Lwanga & Mawejje, 2014).

Additionally, the fiscal theory asserts that if a government has an unsustainable fiscal policy, leading to an inability to meet future obligations from tax revenue (due to a persistent structural deficit), it will resort to inflating the debt away. Therefore, fiscal discipline, such as maintaining a balanced budget over the economic cycle, is imperative for a stable price level; unsustainable deficits would necessitate future inflation. To control inflation and maintain a stable price level, government finances must be sustainable, meaning a balanced budget over the business cycle, without running a structural deficit (Kallie, 2016).

The study will be grounded in the fiscal theory of the price level, which outlines fiscal and monetary policy rules determining the price level solely based on government debt and fiscal policy, with monetary policy having, at most, an indirect role. This contradicts the monetarist perspective, which posits that the money supply is the primary determinant of the price level and inflation.

METHODOLOGY

The research work utilized an Ex post facto research design. Quarterly data from the Central bank of Nigeria Statistical bulletin (2023) from 2008 to 2023 was utilized in the study. The research methodology necessitated the use of empirical analysis, descriptive statistics, unit root

test, cointegration, and regression analysis, as it acknowledges the influence of multiple factors on the effect of external debt on inflation rate in Nigeria. The following model was estimated:

INF = f (MLD, BLD) ……………………………………………….(1)

INF = a + β_1 MLD$_t$ + + β_2BLD$_t$ + e……..……………..................… (2)

where:

INF   =   Inflation rate

MLD   =   Multilateral Debt

BLD   =   Bilateral Debt

a = Intercept (value of Y when X$_j$ = 0)

e = Error term

Equation (2) is built to form:

$$\Delta INF_t = \mu + \alpha_1 INF_{t-1} + \alpha_2 MLD_{t-1} + \alpha_3 BLD_{t-1} + \sum_{i=1}^{p-1} \lambda_1 \Delta INF_{t-i} +$$

$$\sum_{i=0}^{q-1} \lambda_2 \Delta MLD_{t-1} + \sum_{i=0}^{q-1} \lambda_3 \Delta BLD_{t-1} + \varepsilon_t ....(3)$$

Table 1: Variables and Measurement

S/N	Variables	Nature	Measurement/Proxy	Source
1	Inflation Rate	Dependent	Change in consumer price Index	Aimola and Odhiambo (2021)
2	Multilateral Debt	Independent	Debts issued by international financial institutions	Balago (2018)
3	Bilateral Debt	Independent	Debts contracted between the two countries.	Mohanty and Panda (2018)

RESULTS AND DISCUSSIONS

Table 2: Descriptive Statistics

	INF	BLD	MLD
Mean	1.101049	2.401419	3.243115
Median	1.096531	2.492842	3.162769
Maximum	1.316356	3.704767	4.305383
Minimum	0.902273	1.327563	2.568002
Std. Dev.	0.106827	0.721363	0.467955
Skewness	-0.061486	-0.104079	0.454699
Kurtosis	2.353884	1.801315	2.260518
Jarque-Bera	1.081471	3.700438	3.434600
Probability	0.582320	0.157203	0.179550
Observations	64	64	64

Source: *Eviews 10, 2024*

Table 2 shows that inflation rate, bilateral debt and multilateral debt have mean values of 1.101049, 2.401419 and 3.243115 respectively, while deviation values from the mean (standard deviation) were 0.106827, 0.721363 and 0.467955. The mean of inflation rate, bilateral debt and multilateral debt were normally distributed because the standard deviation value was lower than the mean value. In like manner, inflation rate, bilateral debt and multilateral debt had median values of 1.096531, 2.492842 and 3.162769 with Jarque-Bera values of 1.081471, 3.700438 and 3.434600 respectively.

Table 3: Correlation Matrix

	INF	BLD	MLD
INF	1	0.22543	0.3787
BLD	0.22543	1	0.9705
MLD	0.37873	0.97058	1

Source: *Eviews 10, 2024*

Table 3 shows the relationship between external debt and inflation rate in Nigeria where the inflation rate was correlated with bilateral debt to the extent of 0.22, while inflation rate was correlated with multilateral debt to the extent of 0.37. Also, bilateral debt was correlated with inflation rate to the extent of 0.22, while bilateral debt was correlated with multilateral debt to the extent of 0.97. Finally, multilateral debt was correlated with inflation rate to the extent of 0.37, while multilateral debt was correlated with bilateral debt to the extent of 0.97.

Table 4: Summary of Unit Root Test Results

Variables	ADF Test Statistic	Order of Integration
INF	-7.920618 (-3.548208)	*I(1)*
BLD	-7.970049 (-3.548208)	*I(1)*
MLD	-8.201191 (-3.548208)	*I(1)*

Source: *Eviews 10, 2024*

From Table 4, it was discovered that the inflation rate was found stationary at first difference, that is, at order I(1). It follows that their ADF test statistic was discovered to be higher than their threshold values. Additionally, bilateral debt was discovered to be stationary at the first difference, or at order I (1). It follows that their ADF test statistic was discovered to be higher than their threshold values. However, at order I, the first difference, the multilateral debt was found to be stationary (1). It follows that their ADF test statistic was discovered to be higher than their threshold values. The long-term relationship between the variables was examined using the Johansen co-integration approach.

Table 5: Johansen Co-integration Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.192461	17.77909	29.79707	0.5824
At most 1	0.077861	5.380767	15.49471	0.7671
At most 2	0.011644	0.679297	3.841466	0.4098

No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.192461	12.39832	21.13162	0.5089
At most 1	0.077861	4.701470	14.26460	0.7789
At most 2	0.011644	0.679297	3.841466	0.4098

Max-eigenvalue test indicates no cointegration at the 0.05 level
Source: *Authors' Computation, 2024*

From Table 5, the results from the Johansen cointegration test suggest that there is no evidence of cointegration at the 0.05 significance level. The trace statistics of none, at most 1, and at most 2 (15.49471 and 3.841466) exceed their respective 0.05 critical values (15.49471 and 3.841466), while their p-values (0.7671 and 0.4098) are all above the 0.05 significance level for this study. The absence of cointegration in the two criteria of the Johansen co-integration test indicates that there is no long-run relationship between the inflation rate and the two external debt variables (bilateral and multilateral debt) under consideration.

Table 6: Regression Analysis

Dependent Variable: INFLATION_RATE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.069608	0.158859	-0.438176	0.6629
BILATERAL_DEBT	-0.363240	0.058065	-6.255736	0.0000
MULTILATERAL_DEBT	0.629934	0.089509	7.037683	0.0000

R-squared	0.492128	Mean dependent var	1.101049
Adjusted R-squared	0.474308	S.D. dependent var	0.106827
S.E. of regression	0.077455	Akaike info criterion	-2.229545
Sum squared resid	0.341955	Schwarz criterion	-2.124828
Log likelihood	69.88635	Hannan-Quinn criter.	-2.188584
F-statistic	27.61647	Durbin-Watson stat	0.429587
Prob(F-statistic)	0.000000		

Source: *Eviews 10, 2024*

Table 6 indicates a regression model of R-squared of 49%. This indicates that 49% of the variation in inflation rate is explained by the independent variables of bilateral debt and multilateral debt. The remaining 51% is explained by variables outside this model. The Adjusted R^2 of 49% is close to the R^2 value of 49%, meaning that the model is fit and useful for generalizing within this period. Furthermore, the model is fit with a value of F-statistics that stands at 27.61647 with 0.0000 p-value.

Test of Hypothesis

H$_{01}$: Bilateral debt has no significant effect on inflation rate in Nigeria.

The result of the study revealed a coefficient of -0.363240 and a P-value of 0.000. This means that a percentage increase in bilateral debt will result in a 36.3% decrease in inflation rate in Nigeria. This is also significant at a 95% confidence level. As such, the study rejects the hypothesis, which implies that bilateral debt has a negative significant effect on inflation rate in Nigeria.

H$_{02}$: Multilateral debt has no significant effect on inflation rate in Nigeria.

The result of the study revealed a coefficient of 0.629934 and a P-value of 0.000. This means a percentage increase in multilateral debt will result in an increase in the inflation rate in Nigeria. This is also significant at a 95% confidence level. As such, the study rejects the

hypothesis, which implies that multilateral debt has a positive significant effect on inflation rate in Nigeria.

DISCUSSION OF FINDINGS

Based on the findings of the research, bilateral debt has a negative significant effect on inflation rate in Nigeria. The implication is that bilateral debt can contribute to inflation in Nigeria primarily through currency depreciation, debt service obligations, crowding out effects on private sector borrowing, and vulnerability to external economic shocks. High levels of bilateral debt can crowd out private sector borrowing by increasing interest rates. When the government competes for available funds to service debt, lenders may charge higher interest rates to offset perceived risks. This study is consistent with the research of Magaly (2022) and Aimola and Odhiambo (2021).

Also, the findings of the research are in agreement with the research of Saungweme and Odhiambo (2021) and Cham (2023) and Sirah (2020) that multilateral debt has a positive significant effect on inflation rate in Nigeria. The implication is that as Naira depreciates against these currencies, it increases the cost of servicing the debt in local currency terms. This depreciation can also raise the cost of imported goods and raw materials, contributing to inflationary pressures. While multilateral debt can provide necessary funding for development projects and economic stabilization, it also poses risks to Nigeria's inflation rate through currency depreciation, debt servicing burdens, fiscal constraints, monetary policy adjustments, and vulnerability to external shocks.

CONCLUSION AND POLICY RECOMMENDATIONS

The study examined the effect of external debt on inflation rate in Nigeria. The empirical results from this study show that bilateral debt has a positive significant effect on inflation rate in Nigeria while multilateral debt has a positive significant effect on inflation rate in Nigeria.

The following recommendations are therefore proffered:

1. Government should go for more bilateral loans tied to capital projects like the railway project with the China Eximbank. This will encourage price stability and push for the inflow of expatriates that might end up investing in the Nigerian economy and reducing inflation.

2. Government should be cautious in accumulating multilateral debt, since most of these multilateral organizations give stringent conditions on loan taking from them which might spur or hamper the inflation rate of the country. Effective debt management and prudent fiscal policies, which enhance economic resilience, are crucial for mitigating these inflationary impacts.

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